

and a relationship relating the interval between the excitation transient and the emission of each photon to the interval between each photon and the preceding photon in the series is derived to represent the characteristic response.--

REMARKS

Reconsideration and allowance of this application are respectfully requested. Currently, claims 1-15 and 18 are pending in this application.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current Amendment. The attached is captioned "Version With Markings to Show Changes Made."

Allowable Subject Matter:

The Office Action indicated that claims 2 and 9-11 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. By this Amendment, claims 2 and 9 have been rewritten in independent form including the limitations of base claim 1. Claims 10-11 remain dependent from claim 9. Claims 2 and 9-11 are therefore allowable.

Rejection Under 35 U.S.C. §103:

Claims 1, 3-8 and 12-15 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over Kolber et al (U.S. '306, hereinafter "Kolber"). Applicant respectfully traverses this rejection.

In order to establish a *prima facie* case of obviousness, all of the claimed limitations must be taught or suggested by the prior art and there must be some

suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.

The Office Action admits that "Kolber is silent concerning the relationship relating the interval between the excitation transient and the emission of each signal to the interval between each signal and the preceding signal." The Office Action then apparently alleges that this feature would have been obvious to one of ordinary skill in the art in view of the teachings of Figs. 7a-7c, col. 6, lines 20-30 and/or col. 20, lines 50-65. Applicant respectfully disagrees with this allegation.

Claim 1 requires a method of assessing a characteristic response of a medium by deriving a relationship relating to time intervals. Namely, claim 1 relates to assessing a characteristic response of a medium by deriving a relationship between the time interval between the excitation transient and the emission of each signal to the time interval between each signal and the preceding signal. In marked contrast, Figs. 7a-7c, col. 6, lines 20-30 and col. 20, lines 50-65 disclose deriving the ratio of two magnitudes. Namely, Kolber discloses in Figs. 7a-7c deriving the ratio of an emission signal magnitude (EM) to an excitation signal magnitude (EX). Applicant submits that it clearly would not have been obvious to derive a ratio of two time intervals as claimed in light of Kolber's teaching of a ratio between two signal magnitudes (EM/EX).

There is no teaching in Kolber that the time interval between an emission of a signal and its preceding signal is even measured, let alone a ratio

of this time interval and the time interval between the excitation transient and the emission of the signal being derived. In the present invention, there is no requirement that a specific amount of magnitude of the excitation transient or emission signal be measured. In marked contrast, Kolber specifically relies on emission signal magnitude and excitation transient magnitude measurements to measure fluorescence.

The Office Action states that "Kolber teaches ratioing the emission and excitation in time." However, it is again noted that the ratio disclosed by Kolber is between the magnitudes of the emission and the excitation (EM/EX), not the relationship between the time interval between the excitation transient and the emission of each signal to the time interval between each signal and its preceding signal as required by claim 1. This claimed relationship between two time intervals can in no way be determined from the ratio of magnitudes disclosed by Kolber.

Accordingly, Applicant respectfully submits that claims 1, 3-8 and 12-15 are not "obvious" over Kolber and respectfully requests that the rejection of these claims under 35 U.S.C. §103 be withdrawn.

New Claims:

New claim 18 has been added to provide additional protection for the invention. New claim 18 requires, *inter alia*, "the duration of each interval between successive photons is measured, and a relationship relating the interval between the excitation transient and the emission of each photon to the interval between each photon and the preceding photon in the series is derived to

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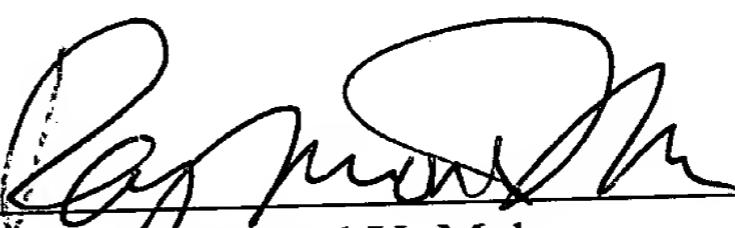
represent the characteristic response." Applicant therefore respectfully submits that claim 18 is allowable.

Conclusion:

Applicant believes that this entire application is in condition for allowance and respectfully requests a notice to this effect. If the Examiner has any questions or believes that an interview would further prosecution of this application, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

2. (Amended) A method for assessing the characteristic response of a medium to an excitation transient of predetermined duration which causes the medium to emit a series of signals over a period of time which is long relative to the duration of the excitation transient, wherein the signals are detected, the duration of each interval between successive signals is measured, and a relationship relating the interval between the excitation transient and the emission of each signal to the interval between each signal and the preceding signal in the series is derived to represent the characteristic response;

[A method according to claim 1,] wherein the interval between the excitation transient and the emission of each signal is plotted against the interval between each signal and the preceding signal in the series, a curve is fitted to the plot, the position of a minimum value of the interval between successive signals as represented by the curve is determined, and the interval between the excitation transient and the minimum is determined to provide a measure of the characteristic response of the medium.

9. (Twice Amended) A method for assessing the characteristic response of a medium to an excitation transient of predetermined duration which causes the medium to emit a series of signals over a period of time which is long relative to the duration of the excitation transient, wherein the signals are detected, the duration of each interval between successive signals is measured, and a relationship relating the interval between the excitation

transient and the emission of each signal to the interval between each signal
and the preceding signal in the series is derived to represent the characteristic
response;

[A method according to claim 1,] wherein excitation is delivered to a plurality of samples of the medium from a single source, and signals from each sample are received by a single detector.